MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.36478/makrjms.2024.10.51.56

Socioeconomic and Demographic Factors Influencing Tobacco use in Slum and Non-Slum Populations of Vijayawada, Andhra Pradesh

[1]Mokalla Venkateswara Rao, [2]Kesagani Sujana Goud, [3]C. Tej Kumar and [4]D. Swarjith Kumar

[1,2]Department of Community Medicine, Government Medical College, Khammam, Telangana, India

[3]Department of Community Medicine, Guntur Medical College, Guntur, Andhra Pradesh, India

[4]Department of Community Medicine, Gandhi Medical College, Hyderabad, Telangana, India

OPEN ACCESS

Key Words
Tobacco, non-slum, slum areas, socioeconomic status, cessation programs

Corresponding Author
C. Tej Kumar,
Department of Community Medicine, Guntur Medical College, Guntur, Andhra Pradesh India
dr.thejchengalva@gmail.com

Author Designation
[1,2]Assistant Professor
[3]Associate Professor
[4]Postgraduate

Received: 20 July 2024
Accepted: 31 August 2024
Published: 4 September 2024

Citation: Mokalla Venkateswara Rao, Kesagani Sujana Goud, C. Tej Kumar and D. Swarjith Kumar, 2024. Socioeconomic and Demographic Factors Influencing Tobacco use in Slum and Non-Slum Populations of Vijayawada, Andhra Pradesh. Res. J. Med. Sci., 18: 51-56, doi: 10.36478/makrjms.2024.10.51.56

ABSTRACT

Tobacco use is one of the leading preventable causes of death and disability globally. Despite declining rates in developed countries, tobacco consumption continues to rise in developing nations, including India, posing significant public health challenges. This study aims to investigate and evaluate the factors and trends of tobacco consumption among adult males in urban slum and non-slum areas of Vijayawada City. A cross-sectional descriptive study was conducted in Vijayawada, Andhra Pradesh, India. The study involved 2008 adult males and females from selected slum and non-slum localities using multistage sampling. Data were collected through self-administered questionnaires. Statistical analyses included the Chi-square test for categorical variables, with a p-value of <0.05 considered statistically significant. The prevalence of current tobacco use was 30.7%, with higher rates observed in slum areas (32.9%) compared to non-slum areas (29.3%), although this difference was not statistically significant (p=0.09). Males had significantly higher tobacco use rates (39.5%) than females (21.5%) (p<0.001). The quit rate among participants was low (12.9%) and did not differ significantly between slum and non-slum areas or between genders. Lower literacy levels and socioeconomic status were associated with higher tobacco use. Tobacco use remains prevalent among adult males in Vijayawada City, with notable differences between slum and non-slum populations. Higher usage rates among males and those with lower socioeconomic status underscore the need for targeted tobacco control interventions. Effective strategies, including public health education, robust cessation programs, and stricter enforcement of tobacco control policies, are critical to addressing this ongoing public health challenge. Community-based approaches involving both government and civil society are essential to curb the rising tobacco epidemic in urban settings.

INTRODUCTION

Tobacco use remains the leading preventable cause of death and disability worldwide, contributing significantly to major health issues such as heart attack, stroke, pneumonia, chronic obstructive pulmonary disease (COPD), lung infections and lung cancer[1]. Recent statistics indicate that nearly 8 million people die annually from tobacco use and this number is projected to increase if current smoking trends continue[2]. A substantial portion of these deaths about 6 million occur in low-and middle-income countries, particularly in China and India. If present smoking patterns persist, it is estimated that around 1 billion people will die from tobacco-related diseases in the 21st century, many of whom are individuals who began smoking during childhood or adolescence[3].

While tobacco use is declining in developed countries at a rate of 0.2% per annum, consumption is increasing by 3.4% annually in less developed countries, highlighting a critical public health concern[4]. Without proactive measures, tobacco-related deaths could total one billion globally within this century. In India, tobacco-related deaths were estimated at 800,000 in 2016 and subsequent studies suggest that the mortality risk may be even higher. The economic burden due to cancers, coronary heart disease (CHD), and COPD associated with tobacco use was estimated at Rs 27,761 crores in 1999[5].

Efforts to combat this epidemic have been ongoing for decades. In 1980, the World Health Organization (WHO) designated "Smoking or Health: Choice is Yours" as the theme for World Health Day and in 1988, the first World No Tobacco Day (WNTD) was established with the theme "Tobacco or Health: Choose Health." Since then, WHO has continued to emphasize the need to address the tobacco epidemic through annual WNTD campaigns[6-7]. India, as a signatory to the Framework Convention on Tobacco Control (FCTC-WHO, 2003), is developing stringent tobacco control laws aimed at reducing tobacco use.

Understanding the socioeconomic and demographic factors influencing tobacco use is crucial for designing effective interventions. Evidence on the correlates of tobacco use can guide policymakers, health practitioners and communities in developing targeted tobacco control models[8]. Despite the widespread impact of tobacco, specific studies examining these factors in the context of urban slum and non-slum populations in Vijayawada have been lacking.

The present study was aimed by investigating the patterns, factors and influences of tobacco consumption among adult males in these distinct populations. Using self-administered questionnaires, the study seeks to evaluate the trends and determinants of tobacco use, providing essential insights to inform future tobacco control strategies in Vijayawada City.

MATERIALS AND METHODS

This study was a cross-sectional descriptive study conducted in various localities within Vijayawada city, focusing on both slum and non-slum areas. A total of 8 slum localities (5% of all slums) and 4 non-slum localities (10% of all non-slum areas) were selected using a simple random sampling method. The study was conducted over a period of 24 months. The study targeted adult males and females residing in Vijayawada city.

Inclusion Criteria:

- Adult residents of Vijayawada.
- Those who consented to participate in the study.

Exclusion Criteria:

- Those not willing to participate in the study.

Sampling Method: Multistage sampling was employed, with the sample size of 2008 proportionally allocated according to the population size in each locality. A simple random sampling procedure was used to select localities and systematic random sampling was applied to select households within each locality. The sampling interval (K) was calculated based on the total number of households (N) and the required number of households (n).

Data Collection: Data were collected using a pre-designed, pre-tested, semi-structured questionnaire. In each selected household, subjects aged 10 years and above were included based on the inclusion criteria.

Ethical Considerations:

- Ethical clearance was obtained from the Institutional Ethical Committee of Siddartha Medical College.
- Permission was also obtained from Vijayawada Municipal Corporation and district authorities of Krishna district.

Statistical Analysis: Data were entered and analyzed using Microsoft Excel 2010 and SPSS version 20.0. The data are presented as numbers and percentages. The Chi-square test was used to compare differences in categorical variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS AND DISCUSSIONS

Table 1: Distribution of Study Subjects According to Locality and Sex in Vijayawada City.

Sex	Non-Slum		Slum		Total	
	n	%	n	%	n	%
Male	625	51.4	404	50.9	1029	51.2
Female	590	48.6	389	49.1	979	48.8
Total	1215	100	793	100	2008	100

(Table-1) shows the distribution of study subjects according to locality and sex in Vijayawada city. The proportion of the males, 1029 (51.2%) was higher than females, 979 (48.8%). Percentages of both males and females were similar in Non-Slum (M- 51.4%; F- 48.6%) and Slum areas (M- 50.9%., F- 49.1%).

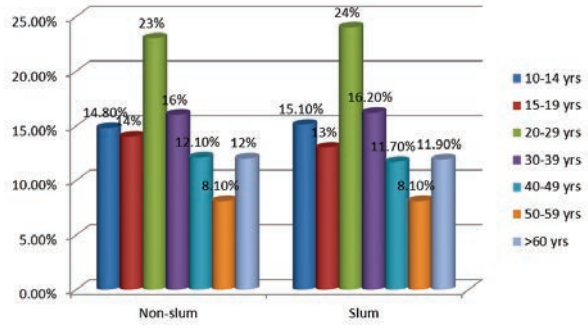

Fig. 1: Distribution of study subjects according to Age, Sex and Locality in Vijayawada City

Figure 1 shows the distribution of study subjects according to age, sex and locality. Among males and females, higher number of participants were present in the age-group of 20-29 years, 469 (23.4%), followed by 30-39 years, 324 (16.1%),10-14 years, 300 (14.9%), compared to other age-groups, 15-19 years, 273 (13.6%),40-49 years, 240 (12%) and least in 50-59 years, 163 (8.1%). Sex in the study participants was ten years and the oldest was 71 years. Mean age of the study sample was 32.6 years (SD + 17 years).

Table 2: Distribution of Subjects According to Locality, Religion and Caste in Vijayawada City

Religion /Caste	Non-Slum (n)	Non-Slum (%)	Slum (n)	Slum (%)	Total (n)	Total (%)
Hindu	961	79.1	696	87.8	1657	82.5
SC	156	16.2	150	21.6	306	18.5
ST	71	7.4	56	8.0	127	7.7
BC	424	44.1	339	48.7	763	46.0
OC	310	32.3	151	21.7	461	27.8
Muslim	170	14.0	65	8.2	235	11.7
Christian	48	3.9	16	2.0	64	3.2
Others	36	3.0	16	2.0	52	2.6
Total	1215	100.0	793	100.0	2008	100.0

(Table 2) shows that Hindus were the majority (82.5%), followed by Muslims (11.7%), Christians (3.2%) and Others (2.6%). Hindus were more prevalent in slum areas (87.8%) compared to non-slum areas (79.1%), while Muslims, Christians and Others had higher percentages in non-slum areas. The distribution by caste among Hindus, with BC being the largest group (46%), followed by OC (27.8%), SC (18.5%), and ST (7.7%). The proportions of SC, ST and BC were higher in slum areas, whereas OCs were more prevalent in non-slum areas.

Table 3: Distribution of Subjects According to Locality, Literacy Level and Occupation in Vijayawada City

Category	Non-Slum (n)	Non-Slum (%)	Slum (n)	Slum (%)	Total (n)	Total (%)
Literacy Level						
- Illiterate	96	7.9	223	28.1	319	15.9
- Primary School	471	38.8	380	47.9	851	42.4
- High School	334	27.5	159	20.1	493	24.6
- College	254	20.9	31	3.9	285	14.2
- Post-Graduation	60	4.9	0	0.0	60	2.9
Occupation						
- Household	349	28.7	118	14.9	467	23.3
- Agriculture	36	3.0	443	55.9	479	23.9
- Other Labour	62	5.1	40	5.0	102	5.0
- Trader	76	6.3	24	3.0	100	4.9
- Professional	61	5.0	16	2.0	77	3.8
- Clerical	293	24.1	24	3.0	317	15.8
- Unemplo yed	72	5.9	40	5.0	112	5.6
- Students	266	21.9	88	11.2	354	17.7
Total	1215	100.0	793	100.0	2008	100.0

The (Table 3) illustrates the distribution of subjects in Vijayawada City based on locality (non-slum and slum) with respect to literacy levels and occupations. In terms of literacy, slum areas have a significantly higher proportion of illiterates (28.1%) compared to non-slum areas (7.9%). Primary school education is the most common level of education in both localities but is more prevalent in slums (47.9% vs. 38.8%). Higher education levels, such as college and post-graduation, are markedly more common in non-slum areas.

Regarding occupations, agriculture is the dominant occupation in slum areas, accounting for 55.9%, whereas household work is most common in non-slum areas (28.7%). Non-slum areas also have a higher proportion of clerical workers (24.1%) and students (21.9%), while slum areas display a more balanced distribution among various occupations but have fewer professionals and traders.

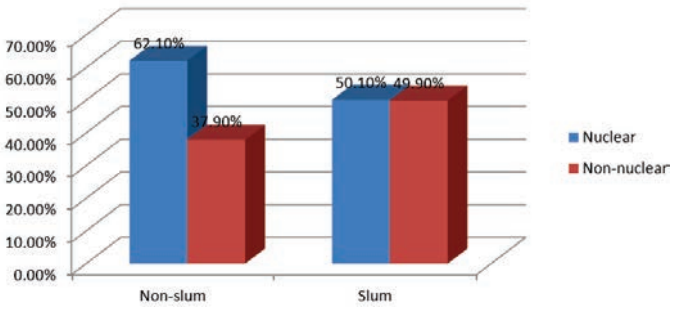

Fig. 2: Distribution of study subjects according to Locality and Family type

Figure 2 shows the distribution of study subjects according to locality and type of family. Some subjects belonged to nuclear families, 1153 (57.4%) compared to non-nuclear families, 855 (42.6%). The proportion of nuclear families was higher by 12% in Non-Slum area

Table 4: Distribution of Current Users and Non-Users by Locality and Gender

Category	Current Users (n)	Current Users (%)	Non-Users (n)	Non-Users (%)	Total (n)	Statistical Test
Non-Slum Males	247	39.5	378	60.5	625	$X^2 = 83.4$, p<0.001 (HS)
Non-Slum Females	109	18.5	481	81.5	590	
Slum Males	160	39.6	244	0.4	404	
Slum Females	101	26.0	288	74.0	389	
Non-Slum Total	356	29.3	859	0.7	1215	$X^2 = 2.94$, p = 0.09 (NS)
Slum Total	261	32.9	532	67.1	793	
Total	617	30.7	1391	69.3	2008	
Male Total	407	39.5	62	60.5	1029	Z = 9.00, p<0.001 (HS)
Female Total	210	21.5	769	78.5	979	
Overall Total	617	30.7	1391	69.3	2008	

Table 5: Quit Rates by Locality and Sex in Vijayawada City

Category	Quitters n (%)	Non-Quitters (Current users) n (%)	Total (Severe use)	
Non-Slum	58 (14.0)	356 (86.0)	414	$X^2 = 1.19$ p = 0.27 NS
Slum	33 (11.2)	261 (88.8)	294	
Total	91 (12.9)	617 (87.1)	708	
Male	60 (12.8)	407 (87.2)	467	Z = 0.04 p > 0.05 NS
Female	31 (12.9)	210 (87.1)	241	
Total	91 (12.9)	617 (87.1)	2008	

than in Slum area and reverse was true for non-nuclear families.

The Table 4 data shows the distribution of current user and non-users by locality (non-slum and slum) and gender in vijayawada city. Among non-slum males, 39.5% are current users, compared to 18.5% of non slum females. In slum areas, 39.6% of males and 26% of females are current user. Overall, 29.3% of non-slum residents are current users, compared to 32.9% in slum areas, though the difference is not statistically significant (p=o.09). Gender-wise, 39.5% of males are current users compared to 21.5% of females, showing a highly significant difference (p<0.001). The total proportion of current users across all groups is 30.7%. (Quit rate = Ex users/ Ever users X 100. Non-quitters= current users)

(Table-5) show quit Rates by locality and sex in Vijayawada city. An overall quit rate of 12.9% was observed in the study. Quit rate was higher in Non-Slum area (14 %) than in the Slum area (11.2%). However this difference was not significant ($X^{[2]} = 1.19$, p = 0.27). The quit rates in both sexes were similar (12.9% and 12.8%). Hence, quit rate difference by sex was not significant (Z=0.04, p > 0.05).

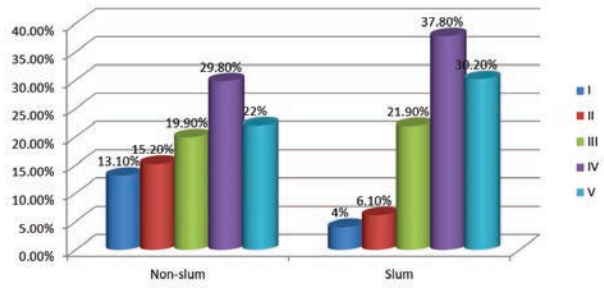

Fig. 3: Distribution of study subjects according to Locality and B.G. Prasad SES Class

Figure 3 shows distribution of study subjects according to locality and B.G. Prasad Socio-economic status (SES) Class. Majority of participants belonged to class IV, 662 (33%), class V, 506 (25.2%), class III, 416 (20.7%) compared to class I, 191 (9.5%) and class II, 233 (11.6%). Nearly 90% of Slum participants belonged to class III, IV and V. The proportions of class I and II together in Non-Slum area was about 18% compared to 10% in Slum area.

This study aimed to assess the prevalence, factors and trends of tobacco use among urban slum and non-slum adult males in Vijayawada City, highlighting significant findings that reflect broader public health concerns. The results show that tobacco use remains a critical health issue, with current use rates significantly higher among males than females across both slum and non-slum areas. The study found that 30.7% of the overall population is current tobacco users, with usage slightly higher in slum areas (32.9%) than in non-slum areas (29.3%). This pattern is consistent with global trends, where lower socio-economic and less educated populations exhibit higher tobacco use rates[9].

The findings of this study align with national and international data that consistently report higher tobacco use among males compared to females. Study conducted in India reported that male tobacco use was significantly higher than female use, with men being three times more likely to use tobacco. This gender disparity reflects sociocultural norms where tobacco use is more socially accepted among men than women[10]. A study by Gupta *et al.*, observed that tobacco use is slightly higher in slum areas correlates with findings from other urban studies in India, which indicate that lower socioeconomic groups, often residing in slum areas, have higher tobacco use rates due to stress, lack of awareness and targeted

marketing by the tobacco industry[11]. Another, a study also reported higher tobacco use in slum dwellers compared to non-slum residents, citing economic and environmental stressors as key factors[12].

The quit rate in the current study (12.9%) is relatively low and not significantly different between slum and non-slum areas or between sexes. Previous research indicates that quit rates tend to be lower in populations with higher tobacco dependence and less access to cessation support, which may explain the findings here[13]. A comparative study in urban Bangalore found similar low quit rates, emphasizing the need for more robust cessation programs targeted at these high-risk populations[14].

Higher literacy levels and professional occupations in non-slum areas correlate with lower tobacco use, reflecting findings from other urban studies that associate higher education and employment status with reduced tobacco consumption. A study conducted in Mumbai reported that individuals with higher education levels were significantly less likely to use tobacco, underscoring the protective effect of education against tobacco use[15].

The distribution of tobacco use across different socioeconomic classes in the study reveals that individuals from lower socioeconomic backgrounds (classes III, IV and V) are more likely to use tobacco. This pattern is consistent with the findings of a study in Kolkata, which highlighted the strong association between low socioeconomic status and increased tobacco use due to affordability of cheaper tobacco products and lack of access to health education[16].

The study concludes that tobacco use remains a prevalent issue among adult males in Vijayawada City, with significant gender and locality differences. Current use is higher among males and slightly more common in slum areas, reflecting broader socio-economic and educational disparities. The study's findings explain the urgent need for targeted tobacco control interventions, particularly in slum areas and among less educated populations. Effective tobacco cessation programs, combined with public health education and stronger enforcement of tobacco control policies, are critical to reducing the tobacco burden in Vijayawada and similar urban settings. Enhanced community-based approaches, involving both government and civil society, will be essential in mitigating this preventable public health challenge.

REFERENCES

1. Samet, J.M., 2013. Tobacco smoking. Thoracic Surg. Clin., 23: 103-112.
2. Bilano, V., S. Gilmour, T. Moffiet, E.T. d'Espaignet and G.A. Stevens et al., 2015. Global trends and projections for tobacco use, 1990–2025: An analysis of smoking indicators from the who comprehensive information systems for tobacco control. Lancet, 385: 966-976.
3. Yang, J.J., D. Yu, W. Wen, X.O. Shu and E. Saito et al., 2019. Tobacco smoking and mortality in asia. JAMA Network Open, Vol. 2 .10.1001/ jamanetworkopen.2019.1474.
4. Perez, W.M.T., M.D.C.D. Miguel and L.M. Seijo, 2018. Tobacco use worldwide: Legislative efforts to curb consumption. Ann. Global Health, 84: 571-579.
5. Mishra, G.A., S.A. Pimple and S.S. Shastri, 2012. An overview of the tobacco problem in India. Indian J. Med. Paed Oncol., 33: 139-145.
6. Nardiello, C. and R.E. Morty, 2020. World No Tobacco Day 2020. American Journal of Physiology-Lung Cellular and Molecular Physiology. 318: 1010-1015.
7. Levy, D.T., F. Chaloupka and J. Gitchell, 2004. The effects of tobacco control policies on smoking rates. J. Public Health Manage. Pract., 10: 338-353.
8. Prabhakar, B., S. Narake and M. Pednekar, 2012. Social disparities in tobacco use in India: The roles of occupation, education and gender. Indian J. Cancer, 49: 401-409.
9. Nayak, G., A.K. Kavitha, N. Satpathy, I. Mohapatra and V. Epari et al., 2023. Gendered pattern and predictors of tobacco use in India: Evidence from the second round of global adult tobacco survey. Indian J. Comm Med., 48: 241-249.
10. Yadav, K., K. Anand. and V. Gupta, 2010. Patterns of tobacco use across rural, urban, and urban-slum populations in a north Indian community. Indian. J. Community. Med., 35: 245-251.
11. Singh, P.K., N. Singh, P. Jain, S.K. Shukla, L. Singh and S. Singh, 2022. Slum and non-slum differences in tobacco and alcohol use among the adult population: A sex-stratified study from eight megacities of India. J. Substance Use, 27: 196-205.
12. Zhu, S.H., T. Melcer, J. Sun, B. Rosbrook and J.P. Pierce, 2000. Smoking cessation with and without assistance. Am. J. Preventive Med., 18: 305-311.
13. Setchoduk, K., P. Pichayapinyo, P. Lapvongwatana and N. Chansatitporn, 2023. The effectiveness of tobacco cessation programs for university students: A systematic review and meta-analysis. Tobacco Induced Dis., Vol. 21 .10.18332/tid/ 162001.
14. Sorensen, G., P.C. Gupta and M.S. Pednekar, 2005. Social disparities in tobacco use in Mumbai, India:

The roles of occupation, education, and gender. Am. J. Public Health, 95: 1003-1008.

15. Mathur, C., M. Stigler, C. Perry, M. Arora and K.S. Reddy, 2008. Differences in prevalence of tobacco use among Indian urban youth: The role of socioeconomic status. Nicotine amp Tobacco Res., 10: 109-116.